

BIBLIOGRAPHICAL NOTICE.

Archaia ; or, Studies of the Cosmogony and Natural History of the Hebrew Scriptures. By J. W. DAWSON, LL.D., F.G.S. &c. Montreal, 1860.

AMONGST the numerous cosmogonists, and quasi-cosmogonists, who have attempted to reconcile the supposed "inconsistencies" of the Mosaic and geological records, there are not many who have possessed that accuracy of judgment and thought, or who have combined a sufficient amount of scientific with theological acumen, to make any permanent impression on the minds of either philosophers or biblical critics. The consequence is, that, practically, each particular inquirer has taken up, more or less, an independent position,—often-times caring but little, or even almost unconscious, whether or not the investigators of truth by different, but converging, lines of argument have arrived at conclusions in harmony with his own! And thus it is that, in some departments, much valuable information which might have been found explanatory of facts obscurely hinted at in others, has been either entirely lost sight of or else regarded as worthless,—and all through the want of that "happy balance" of unbiassed discernment which can detect the golden thread of truth throughout its countless ramifications, not merely in Nature, but equally also in the immaterial and moral worlds.

Whatever may be the results arrived at by the author of the clever and ingenious volume now before us, it will at least be admitted that he has executed his task with a greater amount of ability and judgment than perhaps any writer on the same subject who has preceded him. At once an accomplished geologist, a scholar, and a sound biblical critic, and possessing (which is more important still) a thorough knowledge of Hebrew and a power of unprejudiced perception rarely to be met with, it is not surprising that he should have thrown some new light on many points which have been hitherto but imperfectly discussed: and we feel sure that all who are interested in the study of a subject which yields to none other in importance (though it has lost much by the injudicious handling of shallow sceptics and the rampant speculation of literary dabblers) will thank Dr. Dawson for so able an exposition of his views.

There is a class of reasoners on the Continent (happily not very numerous in this country) who believe the Mosaic narrative of creation to be simply a well-composed myth. They think that the mind of England is not yet sufficiently advanced to accept so bold a doctrine, but that, nevertheless, "for some beautiful moral purpose, Moses tried to palm off upon his credulous countrymen a poetic fiction drawn from what he had learnt in Egypt,"—forgetting that he inserted in the selfsame book which contains this "fiction" the Ten Commandments, and the heaviest denunciations against forgery and deceit! To "philosophers" of that school Dr. Dawson's work does *not* appeal; but those who, on other and more substantial grounds than that which their own hasty and imperfect judgment may supply, already believe in the integrity of Holy Scripture, and who can

conceive it possible that statements are not necessarily untrue simply because they themselves do not at once intuitively understand them, will find a fund of valuable information and suggestions scattered throughout this pleasantly written volume.

To enter into the general plan of the 'Archaia' would require far greater space than that which is here afforded; but we cannot better describe it than as a "running commentary" on the early announcements of Genesis, in which a close collation is made of the Hebrew original with the modern discoveries of science. Separate chapters are devoted to the "days," or æons, of creation, and to an inquiry into the nature of the actual facts to which allusion is made in the Mosaic history of the Cosmos. In his sixth chapter Dr. Dawson inclines strongly towards La Place's theory, commonly known as the Nebular Hypothesis, as most in accordance with the scriptural account of the existence of light before any mention is made of the luminous centre of our system: "What, then, was the nature of the light which on the first day shone without the presence of any local luminary? It must have proceeded from luminous matter diffused through the whole space of the solar system, or surrounding our globe as with a mantle. It was 'clothed with light as with a garment,'—

'Sphered in a radiant cloud; for yet the sun was not.'

We have already rejected the hypothesis that the primeval night proceeded from a temporary obscuration of the atmosphere; and the expression 'God said, Let light be,' affords an additional reason, since, in accordance with the strict precision of language which everywhere prevails in this ancient document, a mere restoration of light would not be stated in such terms. If we wish to find a natural explanation of the mode of illumination referred to, we must recur to one or other of the suppositions mentioned above, that the luminous matter formed a nebulous atmosphere slowly concentrating itself towards the centre of the solar system, or that it formed a special envelope of our earth, which subsequently disappeared" (p. 88).

The various points which are usually supposed to be antagonistic to each other in the two records are examined *seriatim*, and, as it seems to us, in most instances answered satisfactorily. According to the Hebrew narrative, "all the earth's physical features were perfected on the fourth day, immediately before the creation of *animals*" (p. 196); and geological discovery, in which animals play the first part, carries us back to an epoch corresponding with the beginning of the fifth day, which "day," or æon, would appear "to include the whole of the Palæozoic and Mesozoic epochs of geology." But in the Mosaic epitome it will be remembered that *plants* are stated to have made their appearance on the third day, and thus to have preceded animals in the order of succession; so that "we are shut up to the conclusion that the flora of the third day must have its place before the Palæozoic period of geology." "But that there *were* plants," continues our author, "before this period, we may infer almost with certainty from the abundance and distribution of carbonaceous matter in the form of graphite in the Azoic or Laurentian

rocks of Canada; but of the form and structure of these plants we know nothing" (p. 168).

Many interesting suggestions bearing on controverted points might be adduced from the pages of this treatise, did space permit. Thus, in discussing the exact meaning of the Hebrew word "*min*," Dr. Dawson remarks, "A very important truth is contained in the expression 'after its kind,' *i. e.* after its *species*; for the Hebrew '*min*,' used here, has strictly this sense, and, like the Greek *idea* and the Latin *species*, conveys the notion of form as well as that of kind. It is used to denote species of animals in Leviticus i. and xiv., and in Deuteronomy xiv. and xv. We are taught by this statement that plants were created each by itself, and that creation was not a sort of slump-work to be perfected by the operation of a law of development, as fancied by some modern speculators. In this assertion of the distinctness of species, and the production of each by a distinct creative act, revelation tallies perfectly with the conclusions of natural science, which lead us to believe that each species is permanently reproductive, variable within narrow limits, incapable of permanent intermixture with other species, and a direct product of creative power" (p. 163). And, again, whilst drawing a distinction between the expression to "create" and simply to "form" or "make," he adds: "We may again note that the introduction of animal life is marked by the use of the word 'create,' for the first time since the general creation of the heavens and the earth. We may also note that the animal, as well as the plant, was created 'after its kind,' or 'species by species.' The animals are grouped under three great classes,—the Remes, the Tanninim, and the Birds; but, lest any misconception should arise as to the relations of species to these groups, we are expressly informed that the species is here the true unit of the creative work. It is worth while, therefore, to note that this most ancient authority on this much controverted topic connects species on the one hand with the creative fiat, and on the other with the power of continuous reproduction" (p. 192).

In like manner, in his 16th chapter (on the "Unity and Antiquity of Man"), Dr. Dawson once more reverts to the same subject: "The species is not merely an ideal unit; it is a unit in the work of creation. No one better indicates than Agassiz does the doctrine of the creation of animals; but to what is it that creation refers? Not to genera and higher groups: *they express only the relations of things created*;—not to individuals as now existing: *they are the results of the laws of invariability and increase of the species*;—but to certain original individuals, protoplasts, formed after their kinds or species, and representing the powers and limits of variation inherent in the species,—the 'potentialities of their existence,' as Dana well expresses it. The species, therefore, with all its powers and capacities for reproduction, is that which the Creator has made,—His unit in the work, as well as ours in the study... . The limits of variability differ for every species, and must be ascertained by patient investigation of large numbers of specimens, before we can confidently assert the boundaries in some widely distributed and

variable species; but in the greater number this is not difficult, and in all may be ascertained by patient inquiry” (pp. 285, 289).

With the above quotation we must conclude our brief notice of Dr. Dawson’s able and interesting work, merely remarking that, if he has not in all instances succeeded in entirely satisfying the minds of critics, he has at least offered more intelligible solutions of the greater mass of supposed “difficulties” than have been hitherto arrived at—and such, we might add, as may be readily accepted without doing unnecessary violence to either Scripture or science.

PROCEEDINGS OF LEARNED SOCIETIES.

ROYAL SOCIETY.

June 14, 1860.—General Sabine, R.A., Treasurer and V.P.,
in the Chair.

“Researches on the Foraminifera.”—Part IV. By W. B. Carpenter, M.D., F.R.S., F.G.S., F.L.S. &c.

The author in this communication brings to a conclusion that series of inquiries into the structural and physiological characters of *typical forms* of Foraminifera, which he had been induced to work out for the sake of turning to the account of Zoological science the valuable collections made by Mr. Jukes in the Australian Seas and by Mr. Cuming in the Philippine.

The first genus now treated of is *Polystomella*, the smaller and simpler forms of which have long been known, and of which the structure, so far as it can be elucidated by the examination of such specimens, has been already described with great care and accuracy by Professor W. C. Williamson. But in the comparatively gigantic and highly developed *Polystomellæ* of the Australian and Philippine series, a feature exists which is scarcely discernible in the humbler forms previously examined—that feature being the extraordinary development of the canal-system. A spiral canal runs along the inner margin of either surface of every whorl; from this canal a series of arches is given off, of which one passes down between every two adjacent segments, uniting it with the other spiral canal; whilst another set of straight branches passes directly towards the surface of the shell, through the thick calcareous deposit which covers in the depressed centre of the spire, and which extends as far as the last-formed spire. From the connecting arches, successive pairs of diverging branches proceed at frequent intervals; these, in the last whorl, make their way to the surface of the shell, and (when the shell is newly formed) open close on either side of the septal band, though, as the shell increases in thickness by subsequent deposit, the increased divergence of the branches separates their mouths from each other, and it very commonly happens that the two contiguous branches diverging from different arches meet and open by a single external pore half-way between the septal bands. When, however, one whorl